Research Project: Predicting the Return of the Atlantic Sturgeon

The problem: Population sizes and ranges of the Atlantic sturgeon have declined during the 20th century. Ocean-going Atlantic sturgeon return to estuaries in order to spawn and have their young. The location and timing of their return are of primary importance.

Your challenge: You and your team are ready to go on an electronic field trip to collect data to help predict when Atlantic sturgeon might leave their migration path on the Atlantic Ocean to move into estuaries.

Atlantic sturgeon respond to the following water quality factors when moving from the ocean into estuaries to spawn:

Water Temperature:	between 13°C and 17°C night and day
Turbidity:	low
Water Flow:	½ to 1 meter per second
Salinity:	33 parts per 1000
Dissolved Oxygen:	high (above 3.5 mg/L, and ideally above 5mg/L)

To predict when the sturgeon might return to your area to spawn, you will gather data to determine when conditions are favorable, based on the information above.

Planning your project:

1. Select one of the following National Estuarine Research Reserves to investigate. Atlantic sturgeon are found in all of these reserves: Wells (ME), Great Bay (NH), Waquoit Bay (MA), Narragansett Bay (RI), Hudson River (NY), Jacques Cousteau (NJ), Delaware, Chesapeake Bay (MD and VA), North Carolina, N. Inlet-Winyah (SC), ACE Basin (SC), Sapelo Island (GA), and Guano Tolomato Matanzas (FL).

2. Choose data to collect.

    - Which parameters will you need?
    - What time period(s) will you look at?

3. Go online and get data.

    a) Visit www.datainttheclassroom.org and find the Water Quality module.

    b) Follow the link to "Get Data."

    c) Using the form, select "Water Quality" from the list under "Which data?"

    d) Choose your location from the list of recording stations or from the map.

    e) Choose "Water Temperature" from the list of available parameters.

    f) Select the start date and duration for one of the time periods you chose in step 2.

    g) Click the "Get Data" button.

    h) You can print the graph for later use or use a screen capture utility to save the image to your local computer.

    i) Repeat this procedure for all relevant time periods and parameters, until you have collected all of your data.

4. Use the Data Log Sheet to keep a record of the data you select, so you can refer to it later. Begin by writing in the name of your reserve. The first row of data has been filled in as an example.

5. Analyze the data.

    - Can you identify a time period when the water temperature is within the range for the sturgeon to return?
    - What is the range of the other water quality parameters during that time period?
    - Can you identify a time period when all the conditions look right for the sturgeon to return to spawn?
    - Do the same conditions occur around the same time, year after year?

6. Report your findings.

Student Master

Data Log Sheet

As you access online water quality data, keep a record of the parameters and dates you select on this data log sheet. Your data log will help you remember and keep track of the data you have looked at.

National Estuarine Research Reserve: _____

	Station	Parameter	Start Date	Duration	Notes
1	Blackbird Landing	Water Temperature	Apr 1, 2005	One Month	Temperature was between 13°C and 17°C throughout most of the month.